

# Opportunistic planning: The influence of abstract features on reminding

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A pending goal is a goal that has been stored in long term memory for eventual achievement. For example, one might have a pending goal of mailing a letter later in the day, or of buying milk at the grocery store. How do people remember to achieve pending goals? It has been suggested that pending goals are spontaneously associated at encoding with one or more situations under which they might be achieved (Hammond, Converse, Marks, & Seifert, 1993). In this way, opportunities to achieve pending goals are recognized because the opportunities themselves serve as retrieval cues. A number of experiments (Patalano, Hammond, and Seifert, 1993) have shown that recognition of opportunities to achieve pending goals improves when the goals are associated at encoding with concrete descriptions of later opportunities. For example, encoding the goal of mailing a letter (e.g., by thinking of the fact that there is a mailbox on the way to work) increases the likelihood of actually remembering to mail the letter upon passing the mailbox.

No studies to date, however, have provided any suggestion as to whether or not this mechanism extends beyond concrete cue objects, such as mailboxes, to more abstract plan features. For example, does encoding the goal of removing a stuck ring from one's finger by thinking abstractly of using "a lubricant" increase recognition of the opportunity to use a concrete instance of "a stick of butter" to remove the ring? Or must one directly encode the associative link between butter and the goal in order to benefit from elaboration at encoding? Furthermore, there is no evidence regarding whether or not people actually generate these abstract elaborations on their own.

The first of two studies addresses the question of whether or not people generate abstract reminders on their own. In this experiment, during the goal study phase, participants were presented each of a series of goals in the context of a concrete plan for achieving the goal (e.g., Your goal is to remove an elastic band from a high shelf. How could you use a hockey stick in a plan to achieve this goal?). During the reminding phase, participants were presented with objects of each of the following types: identical objects (e.g., hockey stick), same-abstract-plan objects (e.g., yard stick), different-abstract-plan objects (e.g., step ladder), and irrelevant filler objects (e.g., coffee mug).

As a whole, participants recognized the greatest number of opportunities to achieve goals in response to identical objects. This makes sense in that both an elaborative link and a priming effect could play a role in facilitating these reminders. More interestingly, participants also recognized a greater number of opportunities in the context of same-abstract-plan as compared with different-abstract-plan

objects. This suggests that, on the whole, participants did encode the abstract plans implied by the concrete objects presented at encoding. A more in-depth look at individual patterns of responses, however, revealed that only half of the participants showed the above pattern of results. The remainder showed no improvement for same-abstract-plan over different-abstract-plan objects.

In light of the fact that only a subset of participants appeared to spontaneously generate abstract plans, the second experiment explored the more basic question of whether or not people can take advantage of abstract plans if the plans are presented explicitly at the time of encoding. In this experiment, during the goal study phase, participants were presented with goals in the context of abstract plans for achieving each goal (e.g., Your goal is to remove a stuck ring from your finger. If you had a lubricant, you could slide off the ring.). During the reminding phase, participants were presented with: same-abstract-plan objects (e.g., butter), different-abstract-plan objects (e.g., screwdriver), and irrelevant filler objects (e.g., coffee mug).

In this experiment, participants recognized more opportunities to achieve goals in the context of same-abstract-plan as compared with different-abstract-plan objects. Unlike the first experiment, there were no striking individual differences, thus suggesting that people can generally take advantage of abstract plans even when they cannot generate them themselves.

It can thus be concluded from this work that generating abstract plans at encoding is a useful strategy for improving opportunity recognition, but that there may be individual differences in whether or not abstract-plan generation is done spontaneously. This research is important because it suggests that encoding techniques may be developed to help people recognize a wider range of opportunities, thus improving their efficiency and productivity in goal execution. It also suggests that some planning behavior may be accounted for by the same associative memory principles that govern other cognitive tasks.

## References

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